CLAIMS:

1. A method for crystallizing an organic acid comprising the steps of:

converting a part of organic acid crystals into an organic acid salt and dissolving the organic acid salt by adding a base to a liquid containing organic acid crystals; and

adding an acid to the organic acid salt dissolved liquid.

2. A method for crystallizing an organic acid comprising the steps of:

precipitating at least a part of total of the organic acid crystals that are precipitable, by adding an acid to a solution of an organic acid salt;

converting a part of organic acid crystals into an organic acid salt and dissolving the organic acid salt by adding a base to a liquid containing organic acid crystals; and

adding an acid to the organic acid salt dissolved liquid.

3. The method as set forth in claim 1 or 2, wherein M defined below satisfies the following formula:

$$Q / (P \times Z) - 0.3 \leq M / (P \times Z) \leq Q / (P \times Z) - 0.03,$$

where:

M is a value obtained by dividing, by an equivalent weight (g) of the base, an amount (g) of the base being added;

Q is a value obtained by dividing, by an equivalent weight (g) of the acid, an amount (g) of the acid being added before the base is added;

P is an amount(g) of the organic acid salt in the solution containing the organic acid salt before the initial addition of the acid; and

Z is a value obtained by dividing a molecular weight of the organic acid salt in the solution of the organic acid salt before the initial addition of the acid, by the number of anionic functional groups included in one molecule of the organic acid salt.

4. The method as set forth in claim 1 or 2, wherein an amount of the organic acid crystals remained after the addition of the base is from 1 to 30 wt.% of the total of the organic acid crystals to be crystallized.

5. A method for crystallizing an organic acid by adding an acid to a solution of an organic acid salt, wherein:

after organic acid crystals starts being precipitated by

the addition of the acid,

the addition of the acid is carried out while a part of the organic acid crystals is being converted into the organic acid salt and the organic acid salt is being dissolved by addition of a base to a liquid containing the organic acid crystals.

6. The method as set forth in claim 5, wherein:

M / (P × Z) defined below satisfies the following formula:

$$Q / (P \times Z) - 0.3 \leq M / (P \times Z) \leq Q / (P \times Z) - 0.03,$$

where:

M is a value obtained by dividing, by an equivalent weight (g) of the base, an amount (g) of the base being added;

Q is a value obtained by dividing, by an equivalent weight (g) of the acid, an amount (g) of the acid being added before the base is added;

P is an amount(g) of the organic acid salt in the solution of the organic acid salt before the initial addition of the acid; and

Z is a value obtained by dividing a molecular weight of the organic acid salt in the solution of the organic acid salt before the initial addition of the acid, by the number of anionic functional groups included in one molecule of

the organic acid salt.

7. The method as set forth in claim 5, wherein:

the acid and the base are respectively added in reaction vessels being connected with each other, while liquid in the reaction vessels is circulated between the reaction vessels; and

an amount of the base is so adjusted that a value resulting from a formula $L \times M / (T \times F \times P \times Z)$ is 0.5 or more and less than 1.5:

where:

P is an amount(g) of the organic acid salt in the solution of the organic acid salt before the initial addition of the acid;

Z is a value obtained by dividing a molecular weight of the organic acid salt, by the number of anionic functional groups included in one molecule of the organic acid salt;

M is a value obtained by dividing, by an equivalent weight (g) of the base, an amount (g) of the base being added;

T is an adding period (min);

F is an amount of the liquid circulated per unit period (ml/min); and

L is a logarithmic average (ml) of a maximum amount

and a minimum amount of the liquid in this system.

8. A method for producing organic acid crystals comprising the steps of:

converting a part of organic acid crystals into an organic acid salt and dissolving the organic acid salt by adding a base to a liquid containing organic acid crystals;

adding an acid to the organic acid salt dissolved liquid; and

isolating the organic acid crystals from the reaction liquid.

9. A method for producing organic acid crystals, comprising the steps of:

precipitating at least a part of total of the organic acid crystals that are precipitable, by adding an acid to a solution of an organic acid salt;

converting a part of organic acid crystals into an organic acid salt and dissolving the organic acid salt by adding a base to a liquid containing organic acid crystals;

adding an acid to the organic acid salt dissolved liquid; and

isolating the organic acid crystals from the reaction liquid.

10. A crystallizing apparatus comprising:

a crystallizing-reaction vessel;

an acid supplying section for supplying an acid to the crystallizing-reaction vessel; and

a base supplying section for supplying a base to the crystallizing-reaction vessel,

the acid supplying section and the base supplying section being so arranged that the acid and the base are respectively supplied to positions of the crystallizing-reaction vessel, the positions being located at a distance from each other.

11. A crystallizing apparatus comprising:

a first reaction vessel having an acid supplying section;

a second reaction vessel having a base supplying section; and

a liquid circulating section connecting the first reaction vessel with the second reaction vessel, the liquid circulating section being for circulating reaction liquid between the first reaction vessel and the second reaction vessel.